APPROVAL TO CONSTRUCT/MODIFY
A STATIONARY SOURCE

In compliance with provisions of the Clean Air Act, as amended (42 U.S.C. 7401 et seq.), the U.S. Navy is granted approval to construct and operate two 1.75 megawatt diesel-fired internal combustion engines to be located at the U.S. Naval Hospital in Agana, Guam, in accordance with the plans submitted with the applications and with the Federal regulations governing the Prevention of Significant Air Quality Deterioration (40 C.F.R. 52.21) and other conditions attached to this document and made a part of this approval.

Failure to comply with any condition or term set forth in this approval will be considered grounds for enforcement action pursuant to Section 113 of the Clean Air Act.

This Approval to Construct/Modify a stationary source grants no relief from the responsibility for compliance with any other applicable provision of 40 CFR Parts 52, 60 and 61 or any applicable Federal, State, or local air quality regulations.

This approval shall become effective immediately upon receipt by the U.S. Navy.

Dated: 12/12/95

David A. Howekamp
Director
Air and Toxics Division

## PERMIT CONDITIONS

### I. Permit Expiration

This approval to Construct/Modify shall become invalid (1) if construction is not commenced (as defined in 40 CFR 52.21(b)(8)) within 18 months after the approval takes effect, (2) if construction is discontinued for a period of 18 months or more, or (3) if construction is not completed within a reasonable time.

### II. Notification of Commencement of Construction and Startup

The Regional Administrator shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR 60.2(o)) of each facility of the source not more than sixty (60) days nor less than thirty (30) days prior to such date and shall be notified in writing of the actual date of commencement of construction and startup within fifteen (15) days after such date.

### III. Facilities Operation

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this Approval to Construct/Modify shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.

### IV. Malfunction

The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in Section X of these conditions. In addition, the Regional Administrator shall be notified in writing within fifteen (15) days of any such failure. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under Section X of these conditions, and the methods utilized to restore normal operations. Compliance with this malfunction notification provisions shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.

### V. Right to Entry

The Regional Administrator, the head of the State Air Pollution Control Agency, the head of the responsible local Air Pollution Control Agency, and/or their authorized representative, upon the presentation of credentials, shall be permitted:

A. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Approval to Construct/Modify; and

B. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of the Approval to Construct/Modify: and

C. to inspect any equipment, operation, or method required in this Approval to Construct/Modify; and

D. to sample emissions from the source.

## VI. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed or modified, this Approval to Construct/Modify shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Approval to Construct/Modify and its conditions by letter, a copy of which shall be forwarded to the Regional Administrator and the State and local Air Pollution Control Agency.

## VII. Severability

The provisions of this Approval to Construct/Modify are severable, and, if any provision of this Approval to Construct/Modify is held invalid, the remainder of this Approval to Construct/Modify shall not be affected thereby.

## VIII. Other Applicable Regulations

The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable federal, state and local air quality regulations.

## IX. Paperwork Reduction Act

Any requirements established by this permit for the gathering and reporting of information are not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because this permit is not an "information collection request" within the meaning of 44 U.S.C. §§ 3502(4) & (11), 3507, 3512, and 3518. Furthermore, this permit and any information gathering and reporting requirements established by this permit are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons. 44 U.S.C. § 3502(4), (11); 5 C.F.R. § 1320.5(a).

## X. Special Conditions

### A. Certification

The U.S. Navy shall notify the EPA in writing of compliance with Special Conditions X.B and X.H and shall make such notification within (15) days of such compliance. This letter must be signed by a responsible representative of the U.S. Navy.

### B. Air Pollution Control Equipment

The U.S. Navy shall install, continuously operate and maintain the following air pollution controls to minimize emissions. Controls listed shall be fully operational upon startup of the proposed equipment.

1. Fuel Injection Timing Retard of 3 degrees

2. Turbocharging

3. Low NOx Fuel Injectors

### C. Performance Tests

1. Within 60 days of achieving the maximum production rate of the proposed equipment but not later than 180 days after initial startup of the equipment as defined in 40 CFR 60.2(o), and at such other times as specified by the EPA, the U.S. Navy shall conduct performance tests for $NO_x$, $SO_2$, and PM and furnish the EPA (Attn: A-3-3) a written report of the results of such test. The tests for $NO_x$, $SO_2$, and PM shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: A-3-3) from the U.S. Navy, EPA may approve the conducting of performance test as a lower specified production rate. After initial performance tests and upon written request and adequate justification from U.S. Navy, EPA may waive a specified annual test for the facility.

2. Performance tests for the emissions of $SO_2$, $NO_x$, and PM shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods shall be used:

a. Performance tests for the emissions of $SO_2$ shall be conducted using EPA Methods 1-4 and 6C.

b. Performance tests for the emissions of PM shall be conducted using EPA Methods 1-5.

c. Performance tests for the emissions of $NO_x$ shall be conducted using EPA Methods 1-4 and 7E.

The EPA (Attn: A-3-3) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present a the test.

Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above-mentioned test methods, equivalent methods may be used with prior written approval from the EPA.

3. For performance test purposes, sampling ports, platforms and access shall be provided by the U.S. Navy on the diesel engine exhaust systems in accordance with 40 CFR 60.8(e).

**D. Operating Limitations**

1. The sulfur content in the fuel oil used to fire the diesel engine shall not exceed 1.0 weight percent.

2. The U.S. Navy shall record and maintain records of the amounts of fuel oil fired and sulfur weight percent each calendar quarter, and the plant hours of operation. All information shall be recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, calculation and record.

**E. Emissions Limits for $SO_2$**

On and after the date of startup, the U.S. Navy shall not discharge or cause the discharge of $SO_2$ in excess of 31.8 lbs/hr from the diesel engines.

**F. Emission Limits for PM**

On and after the date of startup, the U.S. Navy shall not discharge or cause the discharge of PM/PM-10 in excess of 8.8 lbs/hr from the diesel engines.

On or after the date of startup, the U.S. Navy shall not discharge or cause the discharge into the atmosphere from the engine exhaust stack gases which exhibit an opacity of 20% or greater for any period of periods aggregating more than six minutes in any one hour except during periods of startup or shutdown.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the PM emission limit is revised, the difference between the PM emission limit set forth above and a revised lower PM emission limit shall not be allowed as an emission offset for future construction or modification.

**G. Emission Limits for $NO_x$**

On and after the date of startup, the U.S. Navy shall not discharge or cause the discharge of $NO_x$ in excess of 69 lbs/hr from the diesel engines.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results or the initial $NO_x$ monitoring data required under Special Conditions C and H.

If the $NO_x$ emission limit is revised, the difference between the $NO_x$ emission limit set forth above and a revised lower $NO_x$ emission limit shall not be allowed as an emission offset for future construction or modification.

**H. Continuous/Predictive Emission Monitoring**

1. Prior to the date of startup and thereafter, the U.S. Navy shall install, maintain and operate the following continuous monitoring systems (CEM) in the main stack:

   a. A continuous monitoring system to measure stack gas $NO_x$ concentrations. The system shall meet EPA monitoring performance specification (40 CFR 60.13 and 40 CFR 50, Appendix B, Performance Specification 2, 3, and 4).

   b. A continuous monitoring system to measure stack gas volumetric flow rates. The system shall meet EPA performance specifications (40 CFR Part 52, Appendix E).

2. Alternatively, instead of a CEM system, the U.S. Navy may install a Predictive Emission Monitoring system (PEM) for determining stack gas volumetric flow rates and NOx concentrations. The system shall monitor engine operating conditions and predict NOx emission rates as specified in a plan submitted to EPA for approval within 360 days of the initial startup of the facility. The plan shall identify the operating conditions to be monitored and meet all of the requirements of 40 CFR 75, Subpart E, including an application for certification of an alternative monitoring system.

3. The U.S. Navy shall maintain a file of all measurements, including continuous monitoring systems evaluations; all continuous monitoring systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; performance and all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records.

4. The U.S. Navy shall notify EPA (Attn: A-3-3) of the date which demonstration for the continuous monitoring system (if applicable) performance commences (40 CFR 60.13(c)). This date shall be no later than 60 days after startup.

5. The U.S. Navy shall submit a written report of all excess emissions to EPA (Attn: A-3-3) for every calendar quarter. The report shall include the following:

   a. The magnitude of the excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and compilation of each time period of excess emissions.

   b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported.

   c. The date and time identifying each period during which the continuous monitoring system or PEM was inoperative except for zero and span checks, and the nature of the system repairs or adjustments.

d. When no excess emissions have occurred or the continuous monitoring system or PEM has not been imperative, repaired, or adjusted, such information shall be stated in the report.

e. Excess emissions shall be defined as any 3-hour period during which the average emission of $SO_2$, $NO_x$, and PM, as measured by the CEM, or predicted by the PEM, exceeds the maximum emission limits set forth in Conditions X.E, X.F., and X.G.

6. Excess emission indicted by the CEM or PEM system shall be considered violations of the applicable emission limit for the purpose of this permit.

7. If a CEM system is installed, then not less than 90 days prior to the date of startup of the facility, the U.S. Navy shall submit to the EPA (Attn: A-3-3) a quality assurance project plan for the certification and operation of the continuous emission monitors. Such a plan shall conform to the EPA document "Guidelines for Developing a Quality Assurance Project Plan" (QAMS 005/80). Continuous emission monitoring may not begin until the QA project plan has been approved by the EPA Region 9.

## X. Agency Notifications

All correspondence as required by this Approval to Construct/Modify shall be forwarded to:

A. Director, Air and Toxics Division (Attn: A-3-3)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

B. Administrator
Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

December 13, 1995

IN REPLY REFER TO: A-5-1
NSR 4-11
GU 94-01

Mr. Eric W. Torngren
Director
Environmental Division
Naval Facilities Engineering Command
Bldg 258 - Makalapa
Pearl Harbor, HI 96860-7300

Dear Mr. Torngren:

In accordance with provisions of the Clean Air Act, as amended (42 U.S.C. 7401 et seq.), the Environmental Protection Agency has reviewed the application for an Approval to Construct submitted by the U.S. Navy for the construction and operation of two 1.75 megawatt diesel-fired internal combustion engines to be located at the U.S. Naval Hospital in Agana, Guam.

A request for public comment regarding EPA's proposed action on the above application has been published. After consideration of the expressed views of all interested persons (including State and local agencies), and pertinent Federal statutes and regulations, the EPA hereby issues the enclosed Approval to Construct/Modify a Stationary Source for the facilities described above. This action does not constitute a significant change from the proposed action set forth and offered for public comment.

This Approval to Construct/Modify shall take effect immediately.

Should you have any questions regarding this matter, please contact Bob Baker of our New Source Section at (415) 744-1258.

Sincerely,

David P. Howekamp
Director
Air and Toxics Division

Enclosures

cc: Guam EPA
Joe Kubler, Dames & Moore

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105-3901

October 27, 1994

IN REPLY A-5-1
REFER TO: NSR 4-11
GU 94-01

Mr. Eric W. Torngren
Director
Environmental Division
Naval Facilities Engineering Command
Bldg 258 - Makalapa
Pearl Harbor, HI 96860-7300

Dear Mr. Torngren:

This is in response to your Prevention of Significant Deterioration application for an Environmental Protection Agency Approval to Construct, dated August 31, 1994 and received by this office on September 12, 1994. The application is for the construction and operation of two 1.75 megawatt diesel-fired internal combustion engines at the U.S. Naval Hospital in Agana, Guam.

After our review of the above application and additional supporting information, we have determined that it is administratively complete. A preliminary determination, which will include an Ambient Air Quality Impact Report (AAQIR) and draft permit, is being developed. However, it is possible that clarifying information on one or more parts of the application may be required before we can issue a draft permit.

This notification of completeness does not imply that the EPA agrees with any analyses, conclusions or positions contained in the application. Also, if you should request a suspension in the processing of the application, or submit new information indicating a significant change in the project design, ambient impact or emissions, this determination of completeness may be revised.

Upon issuance of the preliminary determination, we will publish a public notice of our intent to issue the permit. The comment period specified in the notice shall be at least 30 days. Please be advised that at anytime anyone may have full access to the application materials and other information you provide to us in connection with this permit action.

This letter is also to inform you of your rights to claim business confidentiality under 40 CFR 2, Subpart B for any part of or all of the information you provide us, and to document for our files that we have done so. If you do not make a claim of confidentiality for any of this material within 15 days of the date you receive this letter you will have waived your right to do so. The facility name and address may not be claimed as confidential.

If you wish to claim confidentiality, you must substantiate your claim. Your substantiation must address the points enumerated in the attachment to this letter, in accordance with 40 CFR 2.204(e).

If you should have any questions concerning a claim of confidentiality or any question concerning the review of your application, please contact Bob Baker of my staff at (415) 744-1258.

Sincerely,

Matt Haber
Chief, New Source Section
Air and Toxics Division

Attachment

cc: Fred Castro, Guam EPA

## ATTACHMENT

## INSTRUCTIONS FOR CLAIMING CONFIDENTIALITY

A. Pursuant to 40 CFR 2.204(e), your claim must address these points:

i. The portions of the information alleged to be entitled to confidential treatment;

ii. The period of time for which confidential treatment is desired by the business (e.g., until the occurrence of a specific event, or permanently);

iii. The purpose for which the information was furnished to EPA and the appropriate date of submission, if known;

iv. Whether a business confidentiality claim accompanied the information when it was received by EPA;

v. Measures taken by you to guard against the undesired disclosure of the information to others;

vi. The extent to which the information has been disclosed to others and the precautions taken in connection therewith;

vii. Pertinent confidentiality determinations, if any, by EPA or other Federal agencies, and a copy of any such determination or reference to it, if available;

viii. Whether you assert that disclosure of this information would be likely to result in substantial harmful effects on your business's competitive position, and if so, what those harmful effects would be, why they should be viewed as substantial; and an explanation of the casual relationship between disclosure and such harmful effect, and

ix. Whether you assert that the information is voluntarily submitted information and if so, whether any disclosure of the information would tend to lessen the availability to EPA of similar information in the future. "Voluntarily submitted information" is defined in 40 CFR Section 2.201(i) as business information in EPA's possession - -

a). The submission of which EPA has no statutory or contractual authority to require; and

b). The submission of which was not prescribed by statute or regulation as a condition of obtaining some benefit (or avoiding some disadvantage) under a regulatory program of general applicability, including such

regulatory programs as permit, licensing, registration, or certification programs, but excluding programs concerned solely or primarily with the award or administration by EPA of contracts or grants.

B. We will disclose information covered by your claim only to the extent provided for in 40 CFR Part 2, Subpart B Confidentiality of Business Information. Please address your claim and substantiation of confidentiality to the staff person mentioned in the letter at EPA Region 9 (A-5-1), 75 Hawthorne Street, San Francisco, CA 94105.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

September 30, 1994

IN REPLY REFER TO: A-5-1
NSR 4-11
GU 94-01

Mr. Eric W. Torngren
Director
Environmental Division
Naval Facilities Engineering Command
Bldg 258 - Makalapa
Pearl Harbor, HI 96860-7300

Dear Mr. Torngren:

This letter is to acknowledge receipt of your application, dated August 31, 1994 and received by this office on September 12, 1994, for an Environmental Protection Agency Prevention of Significant Deterioration Approval to Construct. The application is for the construction and operation of two 1.75 megawatt diesel-fired internal combustion engines at the U.S. Naval Hospital in Agana, Guam.

Your application and all supporting information is currently being reviewed by this office. You will be notified if additional information is needed in order to continue the processing of the application. To insure that your project scheduling is coordinated with the processing of your PSD application, approximately one year should be estimated for the issuance of the final PSD permit.

The Guam Environmental Protection Agency is being notified of our receipt of this application by copy of this letter. You should consult them concerning their permitting requirements.

If you have any questions concerning the review of your application, please contact Bob Baker of my staff at (415) 744-1258.

Sincerely,

Matt Haber
Chief, New Source Section
Air and Toxics Division

cc: Mr. Fred Castro, Guam EPA
Mr. Joe Kuebler, Dames & Moore

IN REPLY A-5-1
REFER TO: NSR 4-11
GU 94-01

Mr. Eric W. Torngren
Director
Environmental Division
Naval Facilities Engineering Command
Bldg 258 - Makalapa
Pearl Harbor, HI 96860-7300

Dear Mr. Torngren:

This is in response to your August 31, 1994 application for an Environmental Protection Agency Approval to Construct pursuant to the Prevention of Significant Air Quality Deterioration regulations (40 CFR 52.21). The proposed project is the construction and operation of two 1.75 megawatt diesel-fired internal combustion engines at the U.S. Naval Hospital in Agana, Guam.

Our review of the information submitted indicates that pollutants would be emitted in the amounts as listed below:

| Pollutants | Allowable Emission Rate tons/year |
|---|---|
| Sulfur Dioxide | 139.2 |
| Nitrogen Oxides | 302.2 |
| Particulate <PM10> | 38.6 |
| Volatile Organic Compounds (VOC) | 10.9 |
| Carbon Monoxide | 41.2 |

On the basis of the information submitted by the U.S. Navy, and the review criteria established by the above mentioned regulations, EPA has concluded that the project will not cause, or contribute to, a violation of any National Ambient Air Quality Standard. It is the intent of EPA to approve the project subject to the enclosed conditions.

A public notice in the local newspaper will announce the proposed project, EPA's proposed action, and the locations where EPA's technical analysis will be available. Comments on this proposed action may be submitted to the EPA San Francisco Regional Office, Attn: Bob Baker (A-5-1), for a period of thirty (30) days from the start of the public

A-5-1
Baker
11/1/95

comment period. Unless substantive new information is forthcoming, a final decision on the proposed action granting an Approval to Construct will be taken within thirty (30) days from the close of the public comment period. Should there be a significant degree of public comment with respect to the proposed action, EPA may hold a public hearing. The final permit action will be effective 30 days after its receipt by the U.S. Navy, unless:

1. Review is requested under 40 CFR 124.19.

2. No comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

Enclosed is a copy of the EPA's Ambient Air Quality Impact Report for the project. A copy of this report is available for public inspection at the Guam Environmental Protection Agency.

For questions concerning the technical review of your application please call Bob Baker of our New Source Section at (415) 744-1258.

Sincerely,

Matt Haber
Chief, New Source Section
Air & Toxics Division

Enclosure

cc: Guam EPA
Joe Kubler, Dames & Moore

# AMBIENT AIR QUALITY IMPACT REPORT

## I. APPLICANT

U.S. Navy Pacific Division
Naval Facilities Engineering Command
Code 1812
Bldg 258 - Makalapa
Pearl Harbor Hawaii 96860-7300

## II. PROJECT LOCATION

The proposed U.S. Navy cogeneration facility will be located on the site of the U.S. Naval Hospital in Agana, Guam. The project site is located on Guam, the largest and southernmost of the Marianas Islands in the western Pacific Ocean. The island is currently in attainment for carbon monoxide (CO), nitrogen oxides ($NO_x$) and particulate matter. Two areas with 3.5 km radii centered over the Piti and Tanguisson power plants are designated non-attainment for $SO_2$.

## III. PROJECT DESCRIPTION

The proposed 3.5 MW cogeneration project involves the addition of two 1.75 MW diesel-fired IC engines and associated equipment at the U.S. Naval Hospital in Guam. These new engines will provide enough power to meet all of the electricity demands (approximately 1.5 MW) of the U.S. Naval Hospital. Any surplus electricity generated on site will be sold to the Guam Power Authority. Steam generated from the engine exhaust heat will be used by an absorption chiller which will replace an existing electric chiller as a part of this project.

### A. Existing Facilities at the U.S. Naval Hospital

The U.S. Naval Hospital is a large regional medical center with a 422 bed capacity. The existing emission sources on site include three diesel boilers, a medical waste incinerator, three internal combustion (IC) emergency generators (of 2 megawatt, 125 kW, and 75 kW), a 25 kW IC engine, a gasoline station, and fuel storage tanks for the boilers. The three boilers on site have 125 horsepower and burn No. 2 fuel oil. Their current usage pattern is for one to be operated continuously, with the second on stand-by and the third as backup. The boiler in use is operated 24 hours a day, 365 days per year.

The medical waste incinerator is a liquified petroleum gas-fired burner used to incinerate medical waste products. The incinerator is operated four hours per day five days per week. The 1250 kW and 75 kW emergency generators are tested approximately one hour per week, and are operated no more that 500 hours per year each (at 100% load). The 25 kW gasoline-powered IC engine is used to start the 1250 kW generator and is also used less than 500 hours per year.

Emissions from the U.S. Naval Hospital gasoline station come primarily from underground tank filling operations, underground tank breathing, and emissions from vehicle refueling operations. Additional emissions come from auxiliary equipment on site, including two 8,000 gallon above ground storage tanks and one 500 gallon storage tank used for diesel fuel storage.

### B. New Diesel Engine Generators

The proposed 3.5 MW cogeneration facility will consist of two medium speed No. 2 diesel fuel fired IC engines. These engines are equipped with 16 cylinders in a Vee configuration with nominal displacement of 18.5 liters per cylinder. The full-load rated output for each engine is 1750 kWe. Number 2 fuel oil with a sulfur content of no more than 1.0 percent by weight will be used. The engines will be connected to electrical generators producing three-phase power at 4160 volts. A 150 pound per square inch rated steam heat recovery boiler will recover waste heat from the exhaust of each of the IC engines. The proposed operating schedule is for the diesel engines to be operated at 100% load (8760 hours per year). Additional equipment associated with the new diesel engine facility will include a 10,000 gallon above ground storage tank, a black start generator, and a waste heat recovery unit.

## IV. EMISSIONS FROM THE PROPOSED PROJECT

The emissions from the proposed project will come from two 1.75 MW diesel IC engines and two 10,000 gallon above ground storage tanks. Annual emission levels from these sources are listed in Table 1. The emission totals from the two diesel engines were based on vendor supplied emissions factors. The calculations are based on the proposed 100% load operating schedule of 8760 hours per year, 1% sulfur content in fuel by weight, and operating at three degrees fuel injection retardation. Emissions from the above ground storage tanks were calculated with the EPA emissions model TANKS.

## V. APPLICABILITY OF THE PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REGULATIONS

The PSD regulations (40 CFR 52.21) define a "major source" as any source type belonging to a list of 28 source categories which emits or has the "potential to emit" 100 tons per year (tpy) or more of any pollutant regulated under the Clean Air Act, or any other source type which emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy. The potential to emit is based on the maximum emissions from the source, subject to federally enforceable permit limitations. The U.S. Naval Hospital is an existing major source because it has the potential to emit the regulated pollutants in amounts greater than 100 tpy (see Table 1).

**Table 1**
**Estimated Controlled Emissions From The Project**

| Pollutant | Estimated Emissions | |
|---|---|---|
| | lb/hour | tons/year |
| Nitrogen Oxides ($NO_x$ as $NO_2$) | 69.0 | 302.2 |
| Carbon Monoxide (CO) | 9.4 | 41.2 |
| Particulate Matter less than 10 Microns (PM-10) | 8.8 | 38.6 |
| Sulfur Dioxide ($SO_2$) | 31.8 | 139.2 |
| Volatile Organic Compounds (VOC) | 3.2 | 10.9 |

Under the PSD regulations, "significant net emissions increase", is defined as a net increase in emissions which would equal or exceed the significance levels [40 CFR 52.21 (b) (23) (i)] for each pollutant subject to regulation. The significant levels prescribed by the PSD regulations for the subject pollutants are:

| Pollutant | Significant Emission Rate (tons/year) |
|---|---|
| Carbon Monoxide | 100 |
| Nitrogen Oxides | 40 |
| Sulfur Dioxide | 40 |
| PM-10 | 15 |
| Ozone | 40 of VOC |

A PSD review is required for all pollutants from a major source showing significant net increases in emissions in an area for which the applicable National Ambient Air Quality Standard (NAAQS) for those pollutants have not been exceeded (attainment area), or if the status of the area is unclassified. Guam Island has been designated as either attainment or unclassified for all criteria pollutants, with the exception of $SO_2$. The EPA has designated Guam as attainment for $SO_2$ except for two areas with 3.5 km radii centered over the Piti and Tanguisson power plants. The U.S. Naval Hospital is located just outside the Piti non-attainment area. Therefore, a PSD review is required for all criteria pollutants if the project would result in increases of the respective significance levels.

Table 1 shows that the net emission increases of $NO_x$, $SO_2$, and PM-10 are greater than the significance levels as defined in the PSD regulations. Therefore, the source is subject to PSD review for $NO_x$, $SO_2$, and PM-10 as follows:

1. Application of Best Available Control Technology (BACT);

2. Analysis of ambient air quality impacts from the project;

3. Analysis of air quality and/or visibility impacts on Class I areas; and

4. Analysis of impacts on soil and vegetation.

## VI. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

The PSD regulations require that a determination of BACT be made for each pollutant subject to review. BACT is defined as "..an emission limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under the Act...which the Administrator, on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable for such source..."

For the U.S. Navy cogeneration facility, a BACT determination is required for $NO_x$, $SO_2$ and PM-10 since they are the only attainment pollutants which have a significant level of emissions. Emissions of the other pollutants (CO and VOC) are not significant, thus are not subject to a BACT analysis. Alternative BACT technologies for $NO_x$, $SO_2$ and PM-10 are discussed below.

### A. BACT for $NO_x$

The EPA Region IX BACT Guidance Document was examined to determine the appropriate $NO_x$ control technology for the BACT determination. Alternative technologies examined for $NO_x$ control include: Low $NO_x$/Lean Burn Design, Turbocharging, Exhaust Gas Recirculation (EGR), Fuel Injection Timing Retard (FITR), FITR with a Low $NO_x$ Injector, Selective Catalytic Reduction (SCR), Non-Selective Catalytic reduction (NSCR) and Selective Noncatalytic Reduction (SNCR). For $NO_x$, the applicant determined that Lean-burn/Low $NO_x$ Design, EGR, and SCR are technically infeasible. SCR was also found to have significant environmental, economic and energy impacts. The remaining control technologies, Turbocharging with FITR, and Turbocharging with FITR and Low $NO_x$ injector, were determined to be technically feasible. Timing retard coupled with turbocharging and low $NO_x$ injectors was found to be the most technically and economically feasible option which provides the highest level of $NO_x$ emissions control without significant adverse environmental impacts.

After reviewing the U.S. Naval Hospital's BACT analysis and other relevant data, EPA has determined that FITR coupled with Turbocharging and low $NO_x$ injectors, as proposed by the applicant, represents BACT for the control of $NO_x$ emissions.

### B. BACT for $SO_2$

$SO_2$ emissions are directly related to the sulfur content of fuels. The $SO_2$ control technologies evaluated in the PSD application include the following: Use of Low-Sulfur Fuel, Lime and Limestone scrubbing, Sodium Scrubbing, Dual Alkali System, and Dry Scrubbing. All $SO_2$ control technologies except for low sulfur fuel were deemed technically infeasible primarily due to the remote location of Guam. The applicant determined that low sulfur fuel (maximum 1% sulfur content by weight) should be considered BACT for $SO_2$ control.

After reviewing the U.S. Navy's BACT analysis and other relevant data, EPA has determined that the use of low sulfur (1% by weight) fuel represents BACT for the control of $SO_2$ emissions.

### C. BACT for Particulate Matter

The applicant's review of the RACT/BACT/LAER Clearinghouse document revealed that no post-combustion particulate matter controls are employed on diesel engines. The high gas velocities and volumetric flow rates along with the high combustion efficiency of the diesel engine make the application of post-combustion particulate control devices technically infeasible.

After reviewing the available data, EPA has determined that BACT for the control of PM-10 emissions should be the lowest emissions rate achievable through high combustion efficiency and the use of fuel oil with a sulfur content of less than 1.0% by weight.

## VII. AIR QUALITY IMPACTS

The PSD regulations require an air quality analysis to determine the impacts of the proposed project on ambient air quality. For all regulated pollutants emitted in significant quantities, the analysis must consider whether the proposed facility will cause a violation of (1) the applicable PSD increments, and (2) the National Ambient Air Quality Standards (NAAQS). A discussion on the general approach, air quality moclel selection, PSD increment consumption, and compliance with ambient air quality standards are presented below.

## A. General Approach

Air quality modeling was used to determine the ambient impacts of the proposed expansion as well as impacts of the entire facility after the expansion is completed. A preliminary screening analysis was undertaken to determine the worst case operating load, and the significance of the worst-case impacts with respect to the regulatory modeling levels of significance. Both screening and full level air quality modeling were performed for the simple and complex terrain in accordance to the Guidance on Air Quality Models (Revised, EPA, 1996).

The receptor network for the screening analysis consisted of receptors spaced at 100 meters intervals over a distance of 2000 meters. The screening analysis used default meteorology and the receptors were aligned in a downwind direction.

For the full analysis three sets of receptor grids were used: (1) a coarse receptor grid with 500 meter spacing, centered near the Piti power plant, was used to locate the largest area of impact; (2) a fine receptor grid of 100 meter spacing covered the 4 kilometer by 4 kilometer square area centered on the site of the proposed IC engine; (3) a grid with 25 meter spacing was used for complex terrain near the impact area of the plume centerline on elevated terrain.

The meteorological data used in the modeling was from five years of observations (1987 through 1991) at the National Weather Service station on Guam. The data include surface observations and twice-daily upper air soundings.

## B. Air Quality Model Selection

The preliminary screening analysis used the EPA's SCREEN2 model to determine the potential for violations of the National Ambient Air Quality Standards (NAAQS). The ISC2 and COMPLEX1 models were used to estimate emissions in simple and complex terrain, respectively, for the full analysis. The short term version of the ISC2 model, ISCST2, was used to calculate concentrations for average times of 1, 3, and 24-hours while ISCLT2 was used to calculate concentrations for average times of one year.

## C. Preliminary Air Quality Analysis

The screening analysis identified those criteria pollutants which may be anticipated to have air quality impacts above the regulatory significant levels. As shown in Table 2, the maximum predicted screening concentrations for $SO_2$, $NO_x$, and PM (at 100% load) are above the class II significant impact levels. Therefore a full impact analysis is required for $SO_2$, $NO_x$, and PM-10 based on this modeling.

**Table 2**
**Screening Analysis Results**

| Pollutant | Concentration (ug/m3) | Significant Concentration (ug/m3) | Averaging Period |
|---|---|---|---|
| $SO_2$ | 155.3 | 25 | 3-hour |
| | 69.2 | 5 | 24-hour |
| | 17.4 | 1 | Annual |
| $NO_x$ | 25.8 | 1 | Annual |
| PM-10 | 24.0 | 5 | 24-hour |
| | 6.0 | 1 | Annual |

## D. Full Air Quality Impact Analysis

A full impact analysis of $SO_2$, $NO_x$ and PM impacts was completed since the significant impact levels for these pollutants were exceeded in the screening analysis. A full impact analysis expands the preliminary analysis in that it considers emissions from other existing and proposed sources. This analysis is then used to predict ambient concentrations against which the applicable NAAQS and PSD increments are compared for all applicable criteria pollutants.

The $SO_2$ emissions used in the analyses for the Cabras diesel engine and boilers, and the Piti boilers incorporate an intermittent pollution control strategy based on meteorological conditions. During on-shore wind conditions (occurring 10% of the time) the emission sources burn a low sulfur fuel oil. During offshore conditions (90% of the time), a higher sulfur content fuel oil is burned. For modeling purposes, the onshore scenario was utilized since this would produce a conservatively high impact in the area of the proposed project.

*Analysis of PSD Increment Consumption*

For the PSD increment analysis all major sources located within 50 kilometers from the proposed facility were included. These include the following: the two U.S. Navy generators proposed for this project, two other Navy projects (NCTAMS and Naval Air Station), three Orote Point diesel engines, four Tenjo diesel engines, the Cabras diesel engine, and two Dededo generators (for $NO_x$ only). Mobile source emissions were also evaluated but the pollutant levels attributable to vehicle use was found to be insignificant.

It is noteworthy that the sources chosen for this PSD increment analysis differ in several respects with the sources included in the PSD permit applications for other projects in the area, such as the U.S. Navy Orote Point power plant expansion. As stated above, all major stationary sources within 50 km were to be included in this application, whereas only sources with a 10 km radius of the project were included in the Orote PSD application. Hence, this application includes several sources not considered in the other PSD applications. Amongst these are the Dededo Units 1 & 2 and three U.S. Navy sources. There are also three sources included in other PSDs that aren't included here. These include the Cabras diesel unit 4, and the Manenggon diesels 1 & 2. By not including the Cabras 4 diesel engine, the current $SO_2$ and $NO_x$ emissions from the Cabras Power Plant are significantly underestimated in the emissions modeling. However, the Cabras diesel was not included because the PSD application for this project was completed several months before the Cabras 4 PSD application.

Another difference with this application is the stack parameters and emissions rates used in the air quality modeling. In particular, the emissions rates and exhaust flow rates for the Cabras, Tenjo and Orote units differ for with those used in the Orote application.

For the PSD analysis, the amount of available increment consumed or expanded is affected by changes at major stationary sources which occur after the major source baseline date has been established and all changes which may occur after the minor source baseline date. Several permanent changes have occurred at major stationary sources in the study area since the major source baseline dates were established (August 7, 1977 for PM and $SO_2$, and February 8, 1988 for $NO_x$). These changes include the shutdown of the Inductance Power Barge, the shut-down of Piti units 1 and 2, an increase in the stack heights of Piti units 3-5, and the reduction of fuel oil sulfur content during on-shore winds.

The results of the increment analysis are summarized in Table 3. Please note that these modeling results contain lower concentrations than those predicted in the application submitted by the U.S. Navy for the Orote Power Plant due to difference in stack parameters and emissions rates assumed in the analysis. The highest second highest $SO_2$ impacts occur west of the proposed facility. The maximum $NO_2$ and PM impacts occurred at the hospital receptor site west of the proposed project. Annual impacts of $SO_2$, $NO_2$, and PM were 10.9 $\mu g/m^3$, 23.1 $\mu g/m^3$, and 3.0 $\mu g/m^3$, respectively. These concentrations demonstrate compliance as the emissions caused by the proposed project are below the allowable PSD Class II increment. These emissions estimates are considered to be conservatively high since the analysis did not include an assessment of the increment expansion created by the permanent changes mentioned above.

**Table 3**
**PSD Class II Increment Analysis Results**

| Pollutant | Averaging Period | Predicted Concentration (ug/m3) | Class II Increment ($\mu g/m^3$) |
|---|---|---|---|
| $SO_2$ | 3-hour | 87.6 | 512 |
| | 24-hour | 33.8 | 91 |
| | Annual | 10.9 | 20 |
| $NO_x$ (as $NO_2$) | Annual | 23.1 | 25 |
| PM-10 | 24-hour | 10.7 | 30 |
| | Annual | 3.0 | 17 |

***Analysis of Compliance with National Ambient Air Quality Standards***

The NAAQS analysis addressed the impacts from all other major sources on the island of Guam for the applicable criteria pollutants ($SO_2$, $NO_2$, and PM). The major sources included are the following: the two proposed 1.75 MW U.S. Navy generators, two other Navy projects, three Orote Point diesel engines, four Tenjo diesel engines, one Cabras diesel engine and two Cabras

boilers, three Piti boilers, two Dededo generators, two Tanguisson boilers, one U.S. Navy hospital incinerator, one diesel fired boiler each at the U.S. Naval Hospital and the air base, and two U.S. Navy emergency generators (75 kW and 1250 kW). All of the modeled sources were assumed to operate continuously (at 100% load), except for the 2 hospital emergency generators (1250 kW and 75 kW) which are operated only one hour per week.

As in the increment analysis, there are several differences between the emissions sources chosen for this NAAQS analysis and those modeled in the Orote Point PSD application. Twelve sources, including the Tanguisson Boilers 1 & 2, Dededo Units 1 & 2, and eight other U.S. Navy sources, are included in this analysis that weren't considered in the Orote application. However, there are three sources (Cabras diesel 4 and the Manenggon diesels 1 & 2) which were modeled in the Orote analysis but were not included here. The exclusion of the Cabras 4 engine results in lower concentrations of $SO_2$ and $NO_x$ from the Cabras Power Plant.

The NAAQS modeling results are shown in Table 4. The highest impacts for $SO_2$, $NO_2$ and PM all occurred west of the proposed facility. The maximum annual impacts of $SO_2$, $NO_2$, and PM were 19.1 $\mu g/m^3$, 86.8 $\mu g/m^3$, and 5.5 $\mu g/m^3$, respectively. The results demonstrate that the operation of the cogeneration facility will not cause or contribute to a violation of the NAAQS.

**Table 4**
**NAAQS Analysis Results**

| Pollutant | Averaging Period | Predicted Concentration ($\mu g/m^3$) | NAAQS Standard ($\mu g/m^3$) |
|---|---|---|---|
| $SO_2$ | 3 hour | 396.1 | 1300 |
| | 24 hour | 111.4 | 365 |
| | Annual | 19.1 | 80 |
| $NO_x$ | Annual | 86.8 | 100 |
| PM | 24 hour | 16.7 | 150 |
| | Annual | 5.5 | 50 |

### E. Piti Non-Attainment Area

The proposed facility is located approximately 1.4 miles east of the eastern edge of the Piti nonattainment area for $SO_2$. At the direction of USEPA, the applicant modeled the Piti Power Plant and the proposed project together to examine the impacts on the nonattainment area. The modeling results showed that the impacts from both facilities are below the NAAQS standard (Table 5). The maximum 3-hour value is 109 $\mu g/m^3$, the maximum 24-hour value is 37 $\mu g/m^3$, and the maximum annual value is 3 $\mu g/m^3$. This demonstration of compliance with the applicable NAAQS standard is due in large part to several modifications that have been made at the Piti Power plant since the area was designated as nonattainment. These modifications include raising stack heights, burning low sulfur fuel oil during times of on-shore winds and shutting down units 1 and 2.

**Table 5**
**Piti $SO_2$ Nonattainment Area Impacts**

| Averaging Period | Maximum Modeled Concentration ($\mu g/m^3$) | | | NAAQS ($\mu g/m^3$) |
|---|---|---|---|---|
| | Piti Plant | U.S. Navy Hospital Sources | Total | |
| **3-Hour** | 82.2 | 26.3 | 108.5 | 1300 |
| **24-Hour** | 26.7 | 10.0 | 36.7 | 365 |
| **Annual** | 0.3 | 2.5 | 2.8 | 80 |

## VIII. ADDITIONAL IMPACT ANALYSIS

In addition to assessing the ambient air quality impacts expected from a proposed new source or modification, the PSD regulations require that certain other impacts be considered. These additional impacts are those on visibility, soils and vegetation, and growth.

### A. Visibility

The PSD regulations require that PSD permit applications address the potential impairment to visibility in Class I areas. There are no Class I area located on Guam. Therefore no significant visibility impacts are expected in any Class I areas.

### B. Soils and Vegetation

Soils in Guam are of two distinct types dependent upon the geographical area of Guam under examination. Soils of the northern portion of the island are formed from weathered limestone carbonate material while soils in the southern half of the island are formed from weathered volcanic material. While deposition of $SO_2$ could affect the pH of soils, deposition of $NO_x$ could enhance vegetative growth since nitrates are plant nutrients. The vegetation located in the area of predicted maximum impacts does not contain any threatened or endangered species. The maximum predicted annual concentrations of $SO_2$ and PM are well below the NAAQS. Given the acceptable ambient concentrations no significant effects on soils and vegetation are anticipated.

### C. Growth Impacts

The U.S. Navy cogeneration project is designed to help the hospital become self-sustaining from an electrical power standpoint. The project is not expected to increase growth, and therefore, secondary air quality impacts are not expected.

## IX. ENDANGERED SPECIES ACT

Pursuant to Section 7 of the Endangered Species Act, EPA is required to initiate consultation with the Fish and Wildlife Service (FWS) if any action, including permit issuance, might jeopardize the continued existence of endangered or threatened species or adversely modify their critical habitat. However, no terrestrial bird, mammal, or reptile species, that is federally listed, is found in the area of the project. Therefore, the project is not expected to have an impact on threatened or endangered species.

## X. CONCLUSIONS AND PROPOSED ACTION

Based on the information supplied by the applicant, the U.S. Navy, and our review of the analyses contained in the permit application, it is the preliminary determination of the EPA that the proposed project will employ Best Available Control Technology and will not cause or contribute to a violation of the NAAQS or any exceedance of any PSD increment. The EPA intends to issue U.S. Navy an Authority to Construct, subject to the following permit conditions.

## PERMIT CONDITIONS

### I. Permit Expiration

This approval to Construct/Modify shall become invalid (1) if construction is not commenced (as defined in 40 CFR 52.21(b)(8)) within 18 months after the approval takes effect, (2) if construction is discontinued for a period of 18 months or more, or (3) if construction is not completed within a reasonable time.

### II. Notification of Commencement of Construction and Startup

The Regional Administrator shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR 60.2(o)) of each facility of the source not more than sixty (60) days nor less than thirty (30) days prior to such date and shall be notified in writing of the actual data of commencement of construction and startup within fifteen (15) days after such date.

### III. Facilities Operation

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this Approval to Construct/Modify shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.

### IV. Malfunction

The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in Section X of these conditions. In addition, the Regional Administrator shall be notified in writing within fifteen (15) days of any such failure. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under Section X of these conditions, and the methods utilized to restore normal operations. Compliance with this malfunction notification provisions shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.

### V. Right to Entry

The Regional Administrator, the head of the State Air Pollution Control Agency, the head of the responsible local Air Pollution Control Agency, and/or their authorized representative, upon the presentation of credentials, shall be permitted:

A. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Approval to Construct/Modify; and

B. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of the Approval to Construct/Modify: and

C. to inspect any equipment, operation, or method required in this Approval to Construct/Modify; and

D. to sample emissions from the source.

## VI. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed or modified, this Approval to Construct/Modify shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Approval to Construct/Modify and its conditions by letter, a copy of which shall be forwarded to the Regional Administrator and the State and local Air Pollution Control Agency.

## VII. Severability

The provisions of this Approval to Construct/Modify are severable, and, if any provision of this Approval to Construct/Modify is held invalid, the remainder of this Approval to Construct/Modify shall not be affected thereby.

## VIII. Other Applicable Regulations

The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable federal, state and local air quality regulations.

## IX. Paperwork Reduction Act

Any requirements established by this permit for the gathering and reporting of information are not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because this permit is not an "information collection request" within the meaning of 44 U.S.C. §§ 3502(4) & (11), 3507, 3512, and 3518. Furthermore, this permit and any information gathering and reporting requirements established by this permit are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons. 44 U.S.C. § 3502(4), (11); 5 C.F.R. § 1320.5(a).

## X. Special Conditions

### A. Certification

The U.S. Navy shall notify the EPA in writing of compliance with Special Conditions IX.B and IX.H and shall make such notification within (15) days of such compliance. This letter must be signed by a responsible representative of the U.S. Navy.

### B. Air Pollution Control Equipment

The U.S. Navy shall install, continuously operate and maintain the following air pollution controls to minimize emissions. Controls listed shall be fully operational upon startup of the proposed equipment.

1. Fuel Injection Timing Retard of 3 degrees

2. Turbocharging

3. Low NOx Fuel Injectors

### C. Performance Tests

1. Within 60 days of achieving the maximum production rate of the proposed equipment but not later than 180 days after initial startup of the equipment as defined in 40 CFR 60.2(o), and at such other times as specified by the EPA, the U.S. Navy shall conduct performance tests for $NO_x$, $SO_2$, and PM and furnish the EPA (Attn: A-3-3) a written report of the results of such test. The tests for $NO_x$, $SO_2$, and PM shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: A-3-3) from the U.S. Navy, EPA may approve the conducting of performance test as a lower specified production rate. After initial performance tests and upon written request and adequate justification from U.S. Navy, EPA may waive a specified annual test for the facility.

2. Performance tests for the emissions of $SO_2$, $NO_x$, and PM shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods shall be used:

a. Performance tests for the emissions of $SO_2$ shall be conducted using EPA Methods 1-4 and 6C.

b. Performance tests for the emissions of PM shall be conducted using EPA Methods 1-5.

c. Performance tests for the emissions of $NO_x$ shall be conducted using EPA Methods 1-4 and 7E.

The EPA (Attn: A-3-3) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present a the test.

Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above-mentioned test methods, equivalent methods may be used with prior written approval from the EPA.

3. For performance test purposes, sampling ports, platforms and access shall be provided by the U.S. Navy on the diesel engine exhaust systems in accordance with 40 CFR 60.8(e).

**D. Operating Limitations**

1. The sulfur content in the fuel oil used to fire the diesel engine shall not exceed 1.0 weight percent.

2. The U.S. Navy shall record and maintain records of the amounts of fuel oil fired and sulfur weight percent each calendar quarter, and the plant hours of operation. All information shall be recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, calculation and record.

**E. Emissions Limits for $SO_2$**

On and after the date of startup, the U.S. Navy shall not discharge or cause the discharge of $SO_2$ in excess of 31.8 lbs/hr from the diesel engines.

**F. Emission Limits for PM**

On and after the date of startup, the U.S. Navy shall not discharge or cause the discharge of PM/PM-10 in excess of 8.8 lbs/hr from the diesel engines.

On or after the date of startup, the U.S. Navy shall not discharge or cause the discharge into the atmosphere from the engine exhaust stack gases which exhibit an opacity of 20% or greater for any period of periods aggregating more than six minutes in any one hour except during periods of startup or shutdown.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the PM emission limit is revised, the difference between the PM emission limit set forth above and a revised lower PM emission limit shall not be allowed as an emission offset for future construction or modification.

**G. Emission Limits for $NO_x$**

On and after the date of startup, the U.S. Navy shall not discharge or cause the discharge of $NO_x$ in excess of 69 lbs/hr from the diesel engines.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results or the initial $NO_x$ monitoring data required under Special Conditions C and H.

If the $NO_x$ emission limit is revised, the difference between the $NO_x$ emission limit set forth above and a revised lower $NO_x$ emission limit shall not be allowed as an emission offset for future construction or modification.

**H. Continuous/Predictive Emission Monitoring**

1. Prior to the date of startup and thereafter, the U.S. Navy shall install, maintain and operate the following continuous monitoring systems (CEM) in the main stack:

   a. A continuous monitoring system to measure stack gas $NO_x$ concentrations. The system shall meet EPA monitoring performance specification (40 CFR 60.13 and 40 CFR 50, Appendix B, Performance Specification 2, 3, and 4).

   b. A continuous monitoring system to measure stack gas volumetric flow rates. The system shall meet EPA performance specifications (40 CFR Part 52, Appendix E).

2. Alternatively, instead of a CEM system, the U.S. Navy may install a Predictive Emission Monitoring system (PEM) for determining stack gas volumetric flow rates and NOx concentrations. The system shall monitor engine operating conditions and predict NOx emission rates as specified in a plan submitted to EPA for approval within 360 days of the initial startup of the facility. The plan shall identify the operating conditions to be monitored and meet all of the requirements of 40 CFR 75, Subpart E, including an application for cetification of an alternative monitoring system.

3. The U.S. Navy shall maintain a file of all measurements, including continuous monitoring systems evaluations; all continuous monitoring systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; performance and all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records.

4. The U.S. Navy shall notify EPA (Attn: A-3-3) of the date which demonstration for the continuous monitoring system (if applicable) performance commences (40 CFR 60.13(c)). This date shall be no later than 60 days after startup.

5. The U.S. Navy shall submit a written report of all excess emissions to EPA (Attn: A-3-3) for every calendar quarter. The report shall include the following:

    a. The magnitude of the excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and compilation of each time period of excess emissions.

    b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported.

    c. The date and time identifying each period during which the continuous monitoring system or PEM was inoperative except for zero and span checks, and the nature of the system repairs or adjustments.

d. When no excess emissions have occurred or the continuous monitoring system or PEM has not been imperative, repaired, or adjusted, such information shall be stated in the report.

e. Excess emissions shall be defined as any 3-hour period during which the average emission of $SO_2$, $NO_x$, and PM, as measured by the CEM, or predicted by the PEM, exceeds the maximum emission limits set forth in Conditions IX.E, IX.F., and IX.G.

6. Excess emission indicted by the CEM or PEM system shall be considered violations of the applicable emission limit for the purpose of this permit.

7. If a CEM system is installed, then not less than 90 days prior to the date of startup of the facility, the U.S. Navy shall submit to the EPA (Attn: A-3-3) a quality assurance project plan for the certification and operation of the continuous emission monitors. Such a plan shall conform to the EPA document "Guidelines for Developing a Quality Assurance Project Plan" (QAMS 005/80). Continuous emission monitoring may not begin until the QA project plan has been approved by the EPA Region 9.

## X. Agency Notifications

All correspondence as required by this Approval to Construct/Modify shall be forwarded to:

A. Director, Air and Toxics Division (Attn: A-3-3)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

B. Administrator
Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921